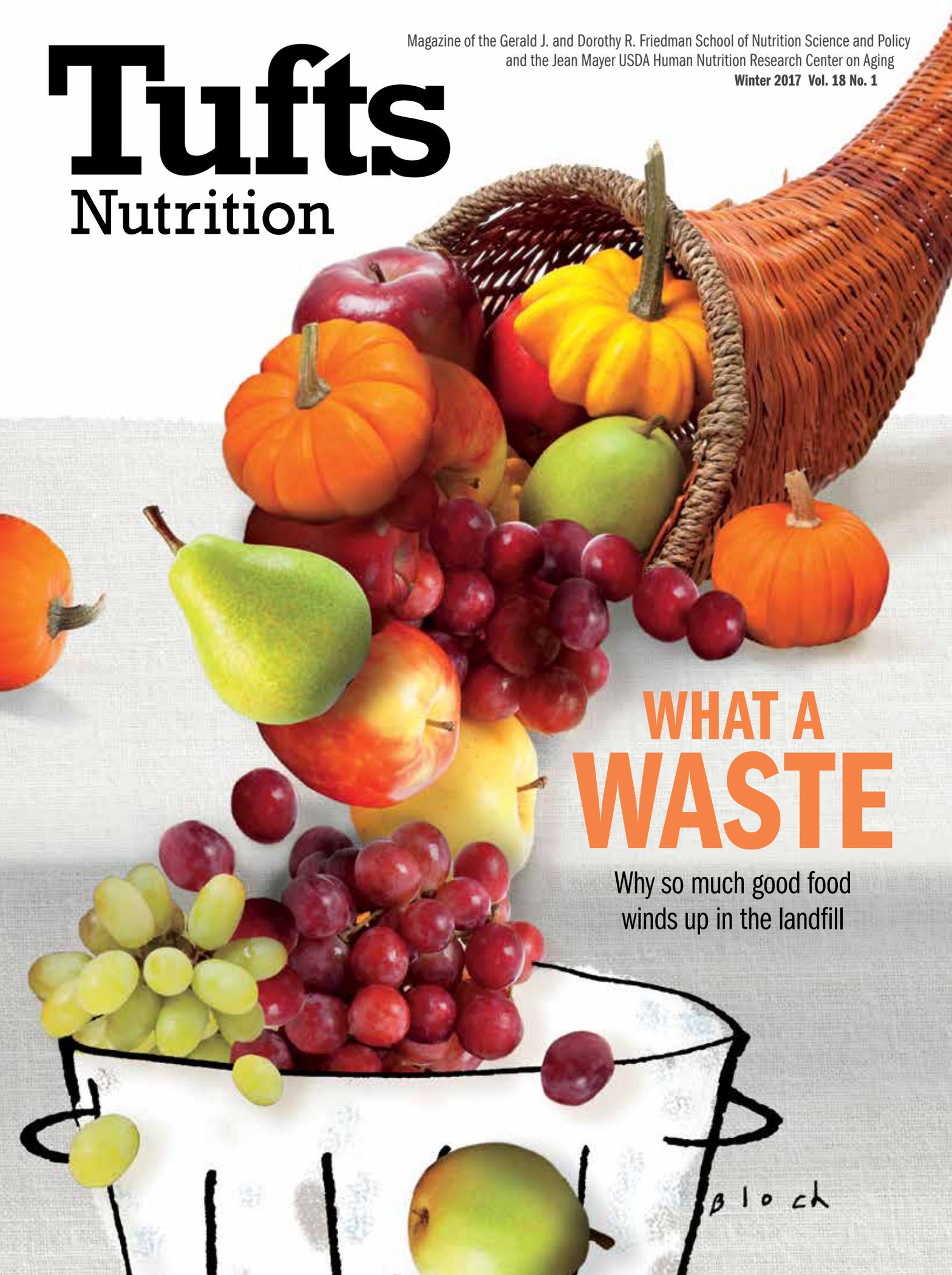


Tufts

Nutrition



WHAT A WASTE

Why so much good food
winds up in the landfill

blach

WHAT TO COOK WHEN YOU HAVE A BUN IN THE OVEN

Morning sickness? Drop a Lemon-Ginger Zing Cube into your seltzer water to soothe the nausea. Heartburn keeping you up at night? Have low-acid Tabouli-ish (aka tabouli sans tomatoes) for dinner. Craving protein but suddenly turned off by the smell of cooking meat? Quinoa-Veggie “Cheeseburgers” may do the trick.

A little menu-planning could help you better handle the physical challenges of pregnancy while meeting your nutritional needs, according to *Healthy, Happy Pregnancy Cookbook* authors Stephanie Clarke, N06, and Willow Jarosh, N06.

Clarke and Jarosh are registered dietitians and owners of C&J Nutrition, a nutrition consulting, communications and workplace wellness company based in New York City and Washington, D.C. The cookbook grew out of a program they developed to offer pre- and postnatal support for their private clients.

The book includes make-ahead meals for after the baby arrives and recipes, such as Orange-Carrot Cream Smoothie, to keep calcium stores stocked, pointing out “if you don’t get enough from your diet or supplements, baby takes what he or she needs from your bones.” A chapter on cravings gives helpful interpretations of favorite comfort foods, such as Baked Mac and Cheese with Roasted Cauliflower.

Most of the recommendations, such as fiber- and magnesium-rich foods to combat constipation, are based on scientific research, while some, like eating oats, chickpeas, nuts and seeds to boost milk production in breast-feeding moms, are only anecdotal. But the ingredients are so healthful that Jarosh considers the potential symptom-solving properties “icing on the already very nutritious cake.” —BETH CAMERON

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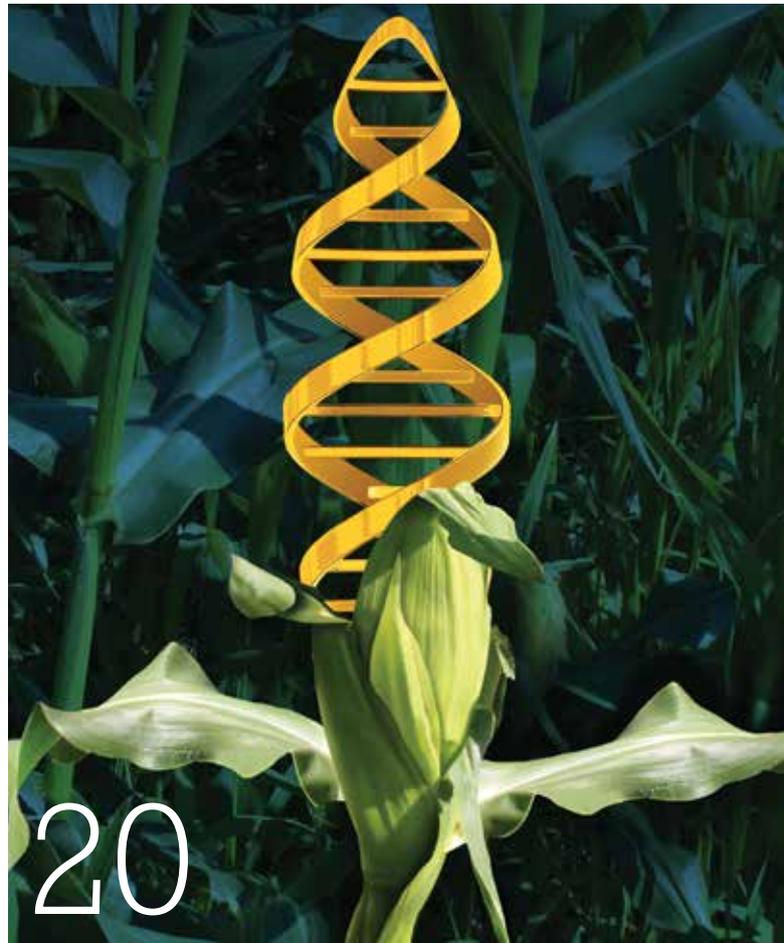
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Celery juice in meat

Cover illustration
by Serge Bloch



A PLAN FOR ACTION



I AM DELIGHTED to announce the launch of the Friedman School's new strategic plan. Over the past 18 months, we have engaged our global community of stakeholders, including faculty, students, staff, alumni, friends, partners and others, in discussions about the greatest challenges and opportunities in the world of nutrition today. We identified our key strengths and competitive advantages, as well as areas with the greatest promise for the future. From this, we

created our new strategic plan, which details how we will focus our strengths and further build our capacity to attain ambitious yet achievable goals over the next five years.

Our vibrant mission is to produce trusted science, future leaders and real-world impact in nutrition science and policy. With 14 goals across eight strategic aims, our plan for action will guide, strengthen and inspire our efforts toward positive change in our community, across the United States and around the world. From nourished children, families and communities to sustainable food environments, from discovery and entrepreneurship to foundational initiatives, our plan outlines where and how we will maintain and expand our leadership. In addition to cutting-edge investigations and education, we aim to integrate principles of social justice, inclusion and diversity across the school's courses, research, student experiences and partnerships; further establish our position as a trusted voice in nutrition; and launch an institutional strategy and structure for advocacy, policy change and public impact.

While this document represents the culmination of 18 months of intensive effort, we know that our plan is best considered a living, evolving road map. In the coming months and years, we will finalize and implement the specific actions for each goal, develop and evaluate the corresponding metrics to assess progress, and seek additional input and apply course corrections, as needed, to ensure success. You can follow our progress at nutrition.tufts.edu/strategicplan.

Our strategic-planning process identified our strong school community as one of our unique strengths. You are part of that community, and I look forward to working together to address the complex nutrition challenges—and harness the remarkable opportunities—facing our country and the world.

DARIUSH MOZAFFARIAN, M.D., Dr.P.H., dean of the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy

Tufts Nutrition

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STAYING TRUE TO THE SCIENCE



INTEGRITY. IT'S A personal value and a professional standard that guides the work of the HNRCA. It's essential to our efforts to advance nutrition science in this time of exciting biomedical breakthroughs. It reminds us that we must reassess old findings while embracing new ideas.

Integrity is vital in our current environment of fake news and social media that thrive on sensational clickbait headlines—I only wish there *were* eight super foods that allow you to defy aging! HNRCA standards demand rigor in our work and a resolute commitment to reporting the complexities of our scientific research. We must have the courage to challenge assumptions that may have guided past research, as our Cardiovascular Nutrition Laboratory recently did in reexamining the Glycemic Index (see “Volatile Index,” page 4).

Maintaining our integrity and a reputation for producing trusted evidence-based research is also critical as we prepare for changes in Washington. A new administration always brings some uncertainty, and this year will be no exception. I'm hopeful that nutrition science will benefit from the strong foundation created last year by the Department of Health and Human Services and the Department of Agriculture when they released the National Nutrition Research Roadmap. We are also hopeful a first-ever strategic plan for nutrition produced by the National Institutes of Health this year will continue to guide the innovation and outstanding research that is the hallmark of the HNRCA.

As interim director of the HNRCA, I find myself thinking about the ethos of the center and what differentiates us from other research organizations. Much of my thinking is reflected in the book *Everyday Practice of Science* by Frederick Grinnell, a professor at the University of Texas Southwestern Medical Center.

I recommend this outstanding little book to anyone interested in what really drives scientists—at the personal, organizational and societal levels. Written by a biochemist, it pulls back the curtain and reveals the many nuances and ambiguities of science. I have to agree with Dr. Grinnell that science is not as logical and absolute as people imagine—but that is exactly what makes this work so exciting and fun.

Grinnell writes that a good scientist must be “open to the possibility of being wrong” and offers the Louis Pasteur observation that “chance favors the prepared mind.” Maintaining our integrity and balancing these two axioms will help the HNRCA prepare for any change that lies ahead.

SARAH BOOTH, Ph.D.

Interim Director, Jean Mayer USDA Human Nutrition Research Center on Aging

LAURELS

The American Society for Nutrition will present awards to two Friedman School faculty at the Experimental Biology meeting in April. Professor **CAROLE PALMER**, head of the master's component of the Frances Stern Combined Dietetic Internship Master's Program, will receive the 2017 Roland L. Weinsier Award for Excellence in Medical/Dental Nutrition Education. Professor **BEATRICE ROGERS**, director of the Food Policy and Applied Nutrition program, will receive the 2017 Kellogg Prize for International Nutrition.

FANG FANG ZHANG, an assistant professor and cancer epidemiologist at the Friedman School, was named the inaugural recipient of the Miriam E. Nelson Tisch Faculty Fellowship. The award, in honor of Miriam “Mim” Nelson, former associate dean at Tisch College and professor at the Friedman School, recognizes faculty who share Nelson's disciplinary and civic interests.

Four Tufts nutrition experts have been named to the founding editorial staff of *Current Developments in Nutrition*, a new peer-reviewed journal published by the American Society for Nutrition. Professors **SARAH BOOTH**, interim director of the Human Nutrition Research Center on Aging (HNRCA) at Tufts and director of its Vitamin K lab, and **EILEEN KENNEDY**, former dean of the Friedman School, will serve as deputy editors. **JOEL MASON**, a Friedman School professor and director of the HNRCA's Vitamins and Carcinogenesis lab, and **GERALD COMBS**, a senior scientist at the HNRCA, were named as academic editors. The journal aims to provide widespread access to the latest research in basic and applied nutrition science.

A La Carte



Volatile Index

Glycemic measurement of carbs may not be the final word on blood sugar.

BIG SWINGS IN your blood sugar level can lead to insulin resistance and diabetes, so eating in a way that keeps your blood sugar stable is a healthy goal. But a recent study found that the glycemic index, a long-consulted ranking of how quickly carbohydrate-containing foods raise blood sugar levels, may not be as reliable as we thought.

In repeated tests involving 63 healthy adults, researchers found that different people who ate the same amount of white bread could have different blood sugar levels, with values varying an average of 25 percent. White bread, long considered a high-glycemic food, ranked anywhere from low to high on the index. Even for the same person eating the same amount of bread at different times, the values varied by an average of 20 percent.

The study, published in the *American Journal of Clinical Nutrition*, suggests the glycemic index isn't that useful.

“Glycemic index values appear to be an unreliable indicator, even under highly standardized conditions, and are unlikely to be useful in guiding food choices,” said lead study author Nirupa Matthan, a scientist in the Cardiovascular Nutrition Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts. “If someone eats the same amount of the same food three times, their blood glucose response should be similar each time, but that was not observed in our study. A food that is low glycemic index for you one time could be high the next time, and it may have no impact on blood sugar for me.”

The researchers, including senior author Alice H. Lichtenstein, director of the HNRCA lab and the Gershoff Professor at the Friedman School, found that gender, body-mass index, blood pressure and physical activity seemed to account for only a small amount of the variability. Bigger factors were the participants' blood levels of insulin and glycated hemoglobin, both measures of the body's ability to manage sugar—and evidence that glycemic index values are influenced by an individual's metabolism.

The glycemic index was developed to help people with diabetes control their blood sugar, but the index went on to be used for food labeling and is a centerpiece for popular diets, including South Beach and the Zone.

“Based on our results, we feel strongly that glycemic index is impractical for use in food labeling or in dietary guidelines at the individual level,” Matthan said. “If your doctor told you your LDL cholesterol value could vary by 20 percent, it would be the difference between being normal or at high risk for heart disease. I don't think many people would find that acceptable.”



Heart Helpers

People with more omega-3s in their blood have a lower risk of dying from a heart attack, according to a study published in *JAMA Internal Medicine*.

People with the highest blood levels of omega-3 fatty acids, which are found in many fish, nuts, seeds and oils, had a 25 percent lower risk of fatal heart attack, compared to people with the lowest levels, according to the study.

“For the leading cause of death in the world, lowering the risk by about 25 percent would be quite meaningful,” said senior author Dariush Mozaffarian, dean of the Friedman School.

GROWING NEW FARMERS AND RANCHERS

For aspiring farmers and ranchers, hands-on fieldwork through an apprenticeship is a big part of learning the ropes.

“This is the number one way that people learn to farm, other than growing up on a farm,” said Jennifer Hashley, director the New Entry Sustainable Farming Project at Tufts.

New Entry has long been a pioneer in educating and mentoring food growers. Now New Entry will take the lead in creating a nationwide network of apprenticeship programs that will share best practices, set guidelines and serve as a resource for beginning farmers and ranchers everywhere. The U.S. Department of Agriculture’s National Institute of Food and Agriculture is providing a three-year, \$600,000 grant to support the network.

New Entry is collaborating with programs in Oregon, New Mexico, Wisconsin, Maine and Montana along with establishing an advisory committee of more than 30 farm organizations.

With more than 40 percent of American farmland expected to change hands in the next two decades, the diverse apprenticeship programs across the country need to develop a more coordinated approach, Hashley said.

One of the key goals is to develop a toolkit to help farms and ranches develop legal apprenticeship programs that pay workers fairly and provide safe working conditions, while providing businesses with the labor they need.

“Unfortunately, right now we estimate up to 90 percent of all on-farm apprenticeships or internships are not actually meeting Department of Labor requirements,” said Hashley, noting that more farms are being fined for lack of compliance. “So this is a big sustainability issue for agriculture, when so much of small-scale sustainable agriculture relies on this work-learning exchange mechanism for their labor source.”

Among many goals, the network wants to develop post-apprenticeship support services for newly trained farmers and ranchers to help them find land and obtain financing.

“Hopefully, it will help producers avoid some of the legal pitfalls and improve the quality of on-farm education for the next generation of farmers and ranchers,” Hashley said.



A Diet Shift Feeds More People

IF AMERICANS CHANGE the way they eat, the existing U.S. farmland could feed a lot more people. In fact, a new model that measures the land needed to grow food for different diets suggests that a vegetarian diet with some dairy makes the most efficient use of the land we have—enough to feed 800 million people, or twice the number who could be fed with our current diet.

Nutritionally, our current diet isn't something to brag about. It's high in calories and sugar and low in fruits and vegetables and falls short of nutritional recommendations on many fronts. So Christian Peters, an associate professor at the Friedman School, and colleagues created a model that compared our current diet's agricultural "food-print" to that of nine other diets: one that mimicked our current diet but contained fewer calories, and eight "healthy" diets that comply with the Dietary Guidelines for Americans but varied in their mix of protein sources, such as meat, eggs, beans, nuts and tofu.



Our current diet had the lowest carrying capacity, meaning that it could feed the fewest people per acre, and required eight times more land than a vegan diet. The lower-cal version wasn't far behind. But among the healthy diets, the vegan diet wasn't the winner for land use: Some of the diets that included meat had higher carrying capacity than a diet completely free of animal products, in part because a vegan diet doesn't make use of land that is only suitable for grazing. The diet that ranked highest was a vegetarian one that includes dairy products.

"Dietary choices can influence the ability of agriculture to meet our need for food," Peters said. "Our approach challenges the 20th-century emphasis on increasing yield and production. Improving crop yields remains vitally important, but it is not the only way to increase the number of people fed per acre. Our

aim is to identify potential agricultural sustainability strategies by addressing both food consumption and production."

The research appeared in the journal *Elementa*.



"Business as usual will generate a catastrophic health crisis. Tweaking at the margins won't suffice. We need a radical transformation of our food systems to nourish—not just feed—9 billion people."

Professor Patrick Webb, in his keynote address to a U.N. symposium in Rome, where he called for action to combat the rising malnutrition that may affect half the world's population by 2035.



Boston residents listen to a presentation by HNRCA scientists.

HOLE IN THE DATA

With all the success scientists have had using genetics to fight against disease, one element is missing: minorities. People with non-European ancestries are underrepresented in genetic databases, hindering the potential of personalized medicine.

For example, while hereditary breast cancer is linked to mutations in the BRCA1 or BRCA2 genes, the “normal” genetic sequence for these genes was determined based on women of European and Ashkenazi Jewish descent, so it’s not always possible to tell normal from abnormal sequences in women from minority groups. Similarly, researchers know that African-Americans are disproportionately affected by variants in the APOL1 gene, which can increase a person’s risk of kidney disease by up to seven times. However, there is not yet enough data to come up with effective treatments.

In a paper for *Health Affairs*, Tufts researchers and others called for efforts to increase the enrollment of nonwhites in studies, develop research relationships with target communities and educate health-care providers about genetic research.

“If we don’t expand our efforts, the quality and effectiveness of genetic research and services will be limited in ways that can perpetuate health disparities,” said José M. Ordovás, director of the Nutrition and Genomics Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts and a coauthor of the paper.

REPLACE YOUR FATS

There are benefits to trading bad fats and carbs for good fats

HERE’S A DIET swap with lots of evidence behind it: Eating more unsaturated fats, especially polyunsaturated fats, in place of carbs or saturated fats lowers blood sugar levels and improves insulin resistance, according to a meta-analysis of data from 102 studies.

The study, led by Dariush Mozaffarian, dean of the Friedman School, and Fumiaki Imamura, N09, a senior investigator scientist at the University of Cambridge, provides new evidence for the effects of dietary fats and carbohydrates on the regulation of glucose and insulin levels and several other metrics linked to type 2 diabetes. The results were published in *PLOS Medicine*.

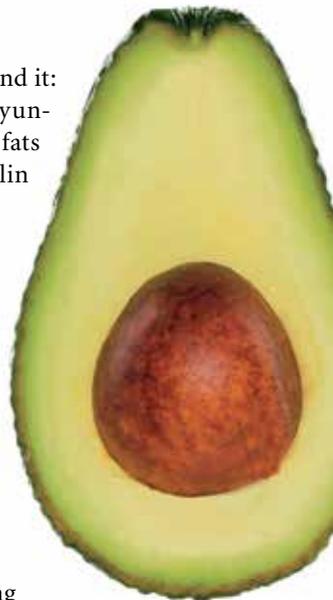
The team identified and summarized findings from randomized controlled feeding trials that involved 4,660 adults; the meals they ate varied in the types and amounts of fat and carbohydrates. The researchers then evaluated how the variations in diet affected measures of metabolic health, including blood sugar, blood insulin, insulin resistance and sensitivity, and the ability to produce insulin in response to blood sugar.

Rates of insulin resistance and type 2 diabetes are rising sharply worldwide, highlighting the need for new, evidence-based preventive strategies.

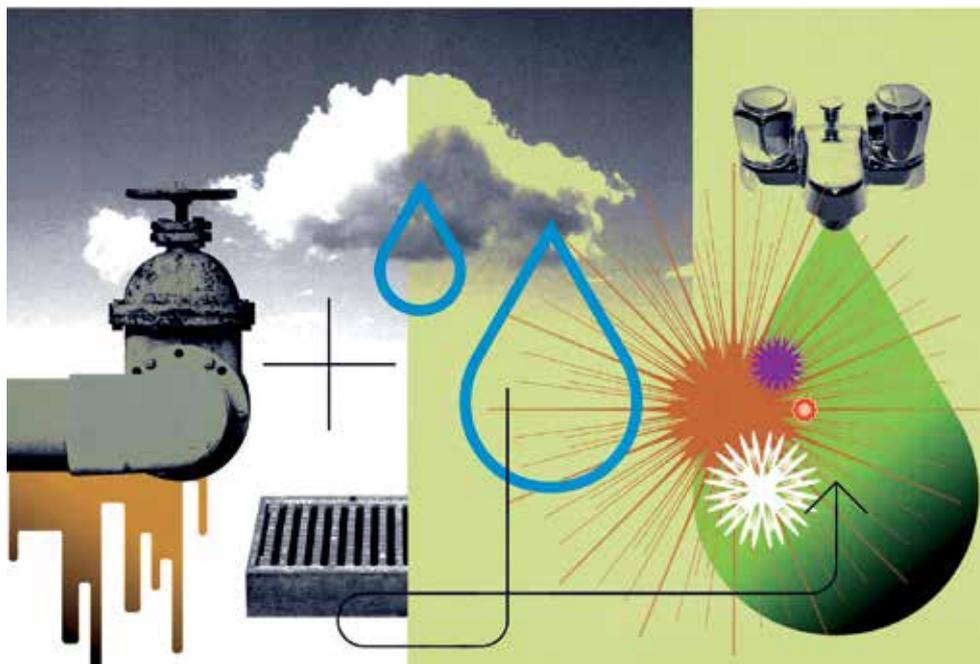
While a healthy diet is clearly a cornerstone of such efforts, the effects of different dietary fats and carbohydrates on metabolic health have been controversial, leading to confusion about specific dietary guidelines and priorities.

“The world faces an epidemic of insulin resistance and diabetes,” said Mozaffarian, the senior author on the study. “Our findings support preventing and treating these diseases by eating more fat-rich foods like walnuts, sunflower seeds, soybeans, flaxseed, fish and other vegetable oils and spreads in place of refined grains, starches, sugars and animal fats.”

“This is a positive message for the public,” he added. “Don’t fear healthy fats.”



Dig In



THAT DIRTY WATER

An inconvenient truth about old sewer systems. **BY DAVID LEVIN**

IN OLDER U.S. cities, heavy rainfall doesn't just flood basements. It can also send a wave of dangerous pathogens into municipal water sources. Lakes, rivers, streams and even reservoirs may see an uptick in sewage-borne bacteria and viruses after heavy rains, infecting boaters and swimmers and overwhelming the ability of treatment plants to purify drinking water, according to Jyotsna Jagai, MPH05, N09.

Jagai, who earned her doctorate at the Friedman School and is a research assistant professor of

environmental and occupational health sciences at the University of Illinois at Chicago, said much of the problem is caused by aging infrastructure. Instead of having two separate pipelines—one for human waste and one for storm runoff—older sewer systems route both waste streams into a single underground pipe, aptly called a “combined sewer.”

When unusually heavy rains fill these sewers past their capacity, water and human waste can sometimes back up out of storm drains, spilling into rivers

and streams. In some cases, Jagai said, sewer operators may be forced to cause an intentional overflow in order to release excess pressure in the sewage lines after a storm.

Jagai is studying these events, which are known as “combined sewer overflows” (CSOs). They're a distinct problem in more than 70 major American cities with aging sewage systems and have a significant effect on public health in those regions, she said.

In 2014, she examined daily historical weather data across Massachusetts

during a five-year period (2003 to 2007), noting regions where sudden, heavy rainfall occurred. She then compared those dates to hospital records from the same area, looking for any change in the number of patients diagnosed with illnesses caused by bacteria and viruses carried in human waste. Sure enough, she said, after heavy rains, she saw a distinct spike in patients diagnosed with gastrointestinal disorders—nearly 13 percent more than usual in areas where the CSOs affect drinking water sources.

“This study looks at extremely heavy rainfall events as a proxy for combined sewer overflow events—we don't make the connection 100 percent, but it definitely shows there's a significant impact,” she said. “These sorts of gastrointestinal or diarrheal diseases have a huge impact on health, especially for patients who are malnourished, or whose immune systems are compromised in some way.”

Environmental Protection Agency guidelines call for the removal of combined sewers over the next 20 years, Jagai said, but many major cities have yet to make the change because such projects are extremely costly. Until that infrastructure is replaced, Jagai said that new data

linking CSOs to illness could help warn residents to boil drinking water or to avoid swimming and boating in certain areas.

“If climate change predictions are true, we’ll be seeing more heavy rainfall and more CSO events in the next 10 to 20 years,” she said. “This study suggests the need for increased messaging to communities to warn people not to play in the water, or to boil and filter drinking water after major rainfall as a precaution.”

Preventive measures like these may work in the short term, but in some cases, the effects of a CSO event can linger for weeks or months after a heavy rain. Certain pathogens can thrive inside aging pipes and water transport systems within some buildings. Microbes like *Legionella pneumophila*, *Mycobacterium avium* and *Pseudomonas aeruginosa*, all of which cause serious respiratory and systemic infections, can form sticky biofilms on interior surfaces of pipes, infecting water that passes over them and prolonging residents’ exposure to those pathogens. A study published in 2016 by Elena Naumova, director of the Initiative for the Forecasting and Modeling of Infectious Disease at Tufts, estimated that those three pathogens alone may result in the

hospitalization of as many as 80,000 elderly each year, at a cost of \$2 billion.

While this is a serious localized concern, Naumova and Jagai are quick to note that water quality in the United States is still exceedingly good overall. Pathogens released during CSO events are often removed from the community water supply during normal treatment processes, and microbes growing in a building’s water mains usually infect only people with compromised immune systems.

“While public drinking water is safe, it is clearly more safe if you are healthy than if you have medical conditions that enhance your vulnerability to infections,” said Jeffrey Griffiths, a professor of public health and community medicine at Tufts School of Medicine and a coauthor on Naumova’s study. “The risk of becoming ill from drinking water is much less than the risk of becoming ill from food, but it is not zero.”

Jagai wants to extend the scope of her research into a broader public health arena. She’s developing a cumulative index for exposure to environmental pollutants—not just pathogens in water, but industrial chemicals, pesticides, the built environment and more. “I want to build a much broader notion

of exposure,” she said. “Everyone should be able to live in a place with access to clean water and clean air. There shouldn’t be an uneven distribution of pollutants. The big theme to me is one of environmental justice.”

BISCUITS THAT COULD CHANGE LIVES

A nutritional supplement developed at Tufts is helping people in one West African village feed their children and earn a living.

BY MONICA JIMENEZ

WHEN TUFTS NUTRITIONIST

Susan Roberts went to the small village of Dandu in Guinea-Bissau, on West Africa’s Atlantic coast, to test nutritional supplements for mothers, infants and children, she could have been satisfied with gathering data about the health of the population. Instead, she decided to throw her arms around the community.

With partners at Tufts and elsewhere, she’s involved in a multipronged mission to help the village thrive by creating new ways for the 800 residents to eat, learn and make a living. Dandu, a subsistence farming community, doesn’t have electricity; there are no stores, and you won’t find any cars there either.

On her first visit to Dandu two years ago, Roberts, a professor at the Friedman School,



Dandu residents prepare the new nutritional biscuits.

discovered that the typical diet is 80 to 90 percent rice. Cassava root is also a staple, with the occasional fish or meat from a small animal. Villagers grow and sell cashews to buy fabric for clothes, aluminum for roofs and more rice. Many children are short and thin, and some have orange hair, the sign of a protein deficiency that causes normally dark hair to lose its pigment.

The conventional food supplement she was testing was supposed to provide better nutrition, but many of the micronutrients absent from the Dandu diet were not in the supplement, said Roberts, who also directs the Energy Metabolism Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts. “When I looked at it, I thought, This isn’t the complete formulation, surely,” she said.

The World Health Organization standard for the supplement is designed to increase the most essential nutrients and keep

kids alive. Roberts wondered whether standard supplements could reverse the cognitive decline or impaired metabolism and immune function caused by malnutrition. To address that, she has developed what she hopes is a more complete food supplement. (Tufts has applied for a patent on Roberts’ supplement.) She began testing it in Dandu in January and will assess its effectiveness over six months. “Our goal is not just to keep kids alive, but to help them thrive—physically, mentally—for long-term health,” she said.

Rather than handing out packets of the new supplement, which comes as a paste, Roberts is taking the project a step further. Aided by a \$200,000 grant and business expertise from philanthropist and entrepreneur Bill Schawbel, Roberts will buy the ingredients used to make the supplement, such as peanuts from West African farmers, and

pay local bakers to make special biscuits containing the supplement. Then she’ll hire local workers to distribute them.

Not only will the supplement help improve the villagers’ nutritional status, the local production and distribution of it will stimulate the economy and enable villagers to continue production even after the six-month trial has ended, Roberts said.

Schawbel, founder of the Schawbel Corp. and CEO of Schawbel Technologies, which manufactures heated insoles and hand warmers, visited Dandu with Roberts last year during a trial of the supplement production system.

He asked the villagers if they could increase production. “They said, ‘Oh yeah, our wives could work with us,’” Schawbel said. “I said, ‘Could you deliver some baked goods to other villages?’ And they said, ‘Our kids on bikes could do that.’ I said, ‘Now there’s a business.’”

Roberts has been working to fortify Dandu in other ways. When she found out that the villagers desperately wanted their children to be educated, she and her colleagues including Sai Das, N02, an assistant professor, and Andrew Greenberg, the Atkins Professor in Nutrition and Metabolism, privately raised \$7,000, and the villagers built Dandu’s first elementary school; it now has 200 students. Nina Schlossman, J75, N86, founder and president of Global Food and Nutrition, and John Whetten, former CEO of Challenge Dairy, also contributed. They’re trying to raise another \$7,000 to build two more classrooms.

As discerning as she is about what goes into food supplements, Roberts is just as picky when it comes to food for thought. Looking to start a library at the school, Roberts pored over American children’s books and found them lacking. “Our books are [about]... things they’ve never even seen,” she said. “It’s almost impossible to find culturally appropriate books for beginning readers in subsistence farming villages.”

With the help of the Global Literacy Collaborative and a seed grant from the university, Roberts is collaborating with locals to gather Dandu’s history, songs and proverbs, which will be translated and turned into reading



Children at the Dandu school that Tufts researchers helped create

material that will be offered to students on tablet devices. Roberts has already brought a handful of tablets to the village to show children how to use them, and distributed a 30-page text about the history of Dandu. “We’re combining what we hope is a superior nutritional formulation with educational enrichment to see how far we can push the envelope to help these kids turn into exceptional students,” she said.

Schawbel hopes to eventually expand access to the food supplement, helping villages around the world improve their health, educate their children and create a sustainable income for themselves. “With this one simple biscuit, I think we can make a major change in the world,” he said.

The villagers of Dandu “are rich in everything except material goods,” Roberts said. “They are a very worthy people to help. And what else are we here for other than to do some good in the world?”

GET 'EM WHILE THEY'RE CUBS

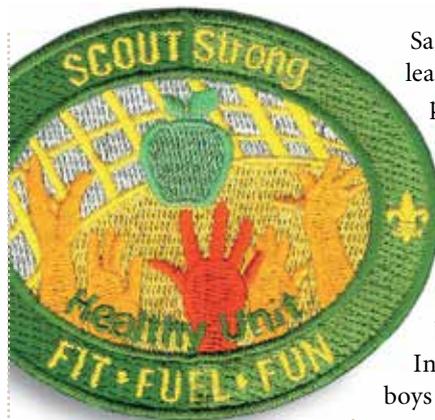
Scout troops strive for healthier habits.

BY BETH CAMERON

BOYS IN MATCHING kerchiefs and caps cluster around a snack table. Their uniforms might be reminiscent of a Norman Rockwell painting, but this is not your father’s Cub Scout meeting. Instead of eating cookies and drinking bug juice, these first-graders are sampling kiwi and star fruit with all the intensity of grown-ups at a wine tasting.

The fruit and vegetable taste test is just one of the activities the boys might try as they work to earn the SCOUTStrong Healthy Unit patch. Developed in partnership with Healthy Kids Out of School (HKOS), an initiative of ChildObesity180 at the Friedman School of Nutrition Science and Policy at Tufts, the award is designed to help Boy Scout troops make simple changes to their snacking and activity routines and establish a new “healthy meeting” norm.

Over the course of at least nine meetings, the scouts practice healthy habits, such as drinking water instead of sugary beverages, choosing



nutritious snacks, and increasing physical activity. Alyssa Koomas, project manager for HKOS, said that trying out new activities in the company of peers can help reinforce the behaviors, which means that scouts are more likely to bring some of the new habits home with them.

The Harvard Pilgrim Healthcare Foundation sponsored a three-year study with Boy Scouts in New England that resulted in the patch program, as well as updates to Cub Scout Leader Guides that incorporate the new healthy meeting principles. A corollary Strong Girls patch for Girl Scout troops debuted in 2015.

More than 40,000 Boy and Girl Scouts have completed the patch programs. With more than 4 million children participating in scouting in the United States each year, the patch program could go a long way toward helping ChildObesity180 accomplish its mission to reverse the trend of the childhood obesity epidemic within one generation.

Sandy Smith, a scout leader in Bangor, Maine, piloted the Healthy Unit patch program with his grandson’s troop, working with parents to revamp the weekly meeting. Sodas and juice boxes were banned.

Instead of candy, the boys now bring apples, carrots and fresh-popped popcorn to share at snack time. But by far the most popular change was stretching the meeting time from 60 to 75 minutes to allow for physical activity.

“The kids started to ask when it would be time to head outside and run around,” said Smith. Scouts who initially struggled to put away screens during meeting time became enthusiastic participants and even signed up to attend scout camp during the summer. Koomas hopes the success of the scouting patch programs will translate to other volunteer-led initiatives. To that end, HKOS has created a number of other healthy-habits programs, including a training to help youth sports coaches educate athletes about the best ways to refuel on and off the field. Eventually, kids could hear the same healthy-choice message at all their out-of-school activities, so when they run from a scout meeting to soccer practice, they skip the sugary sports drinks and bring their water bottles instead.



If you are interested in supporting the Tufts nutrition research in Guinea-Bissau, please contact Cindy Briggs Tobin, senior director of development at the Friedman School, at 617.636.2940 or cindy.briggs@tufts.edu. You can also make a gift to the project online at www.tuftsgiving.org; please indicate that your gift is for the Family Nutrition Research Program in Guinea-Bissau.

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